

Remarks

Rejections Under 35 U.S.C. 102(b)

Claims 1, 2 and 5 stand rejected in the Office Action dated July 19, 2003. In the Office Action, the Examiner states that the subject claims are “obvious by Carroll.” The Applicant assumes that the rejection is intended to be “anticipated.” Accordingly, Applicant has prepared the present response and amendment as if rejections under §102(b) were in fact intended. Claim 1 requires:

[A] selectively operable actuator coupled to a proximal end of said pin, said pin being selectively reciprocable in and out of said passage with said actuator. (Emphasis Added)

Applicant has limited claim 1 to a design wherein the actuator can move the pin either direction, “in and out,” with respect to the passage. (See Applicant’s specification at page 3, line 8). Further, the actuator is “selectively operable.” (Applicant’s specification page 4, lines 7-8). Even if one were to construe the spring of Carroll as an actuator, the spring urges the pin of Carroll in only one direction, to a closed position. Moreover, the spring of Carroll cannot be said to be selectively operable. Applicant’s design allows: “various amounts of gas to be released depending on the size of the outlet opening created at the nozzle end by actuated movement of the rod in the chamber.” Carroll provides only one means for extending the pin, injected fluid via said passage, the rejections are therefore overcome and withdrawal of the same is respectfully requested.

Rejections Under 35 U.S.C. § 103

Claim 3 stands rejected as unpatentable over Carroll as applied to claims 1, 2 and 5 and further in view of Daniels. Claim 3 depends from claim 1 and differs only in that the actuator coupled to the pin opposite the distal portion is limited to an hydraulic actuator. As discussed with respect to claim 1, Carroll does not teach a “selectively operable” actuator, nor one that can reciprocate the pin “in and out” of the passage. Claim 1 and thus claim 3 requires that the pin be extendable by two separate means. Carroll teaches a single means for extending the pin, i.e. the enlarged distal portion, whereas Daniels teaches single actuation means, i.e. a cylinder or *alternatively*, an

enlarged distal portion. Whether the actuator at the distal end of the pin in Applicant's device is hydraulic, pneumatic, or a ball screw drive; two types of pin control are provided in the same apparatus as claimed, distinguishing over the cited art. The Examiner states that an additional actuator would provide "better sealing," but has pointed to no teaching in the references of record nor knowledge in the art that suggests adding a selectively operable actuator to a pin to improve sealing.

Claim 4 stands rejected as unpatentable over Carroll in view of Denne. For reasons similar to those expressed relative to the hydraulic actuator of claim 3, there is no suggestion or teaching in the art to modify Carroll with the addition of an electromagnetic actuator as required by claim 4, particularly one that is selectively operable as claimed. The rejections are therefore overcome for reasons similar to those expressed with respect to claim 3, and withdrawal of the same is respectfully requested.

Claim 6 stands rejected as unpatentable over Carroll in view of Terao. The rejection is overcome for reasons similar to those expressed with regard to claims 3 and 4 above, and withdrawal of the same is respectfully requested.

Claims 7-10 stand rejected as unpatentable over Carroll in view of Denne. Claim 7 as amended requires:

[W]herein an adjustment of the position of said pin with said actuator controls the gas delivered to the molding chamber.

Carroll does not teach a design wherein the pin is reciprocable "in and out" of the conduit independently of the gas. (See Applicant's specification at page 3, line 8). Further, the Carroll reference does not teach a design wherein a position of the pin provides for varying amounts of gas to be delivered at a given gas pressure. The position of the pin and the pressure of the gas supply in Carroll are directly correlated. In Applicant's invention, they need not be. There is no suggestion in Carroll or in the art generally to provide an additional actuator to the Carroll design, much less a suggestion to provide one that is adjustable independent of the gas pressure. Operation of the actuator separately from the gas pressure is inherent in Applicant's disclosure:

It will allow for various amounts of gas to be released depending on the size of the outlet opening..."

The judgment that enhanced control and accuracy inhere in a dual actuator design can be made only with the benefit of hindsight, and made only based upon Applicant's disclosure. There is absolutely no suggestion in the cited art to support such a conclusion. This is the antithesis of obviousness. Moreover, Carroll is already provided with a single spring actuator, which would teach away from the use of a dual actuator. The rejection is therefore overcome and withdrawal of the same is respectfully requested.

Claim 11 stands rejected as unpatentable over Carroll in view of Daniels. Claim 11 has been amended to distinctly set forth the structure and operation of the nozzle in a manner not taught or suggested by the cited references. In particular, claim 11 requires:

[A] second end of said pin opposite said first end includes a second pressure surface, said second end extending into a variable pressure fluid reservoir the pressure of said reservoir being independent of the pressurized fluid supply. (Emphasis Added)

Claim 11 thus requires pressure surfaces at opposite ends of the pin. The Examiner would interpret Carroll to teach two pressure surfaces. Applicant disagrees, however, even under the Examiner's interpretation, Carroll cannot be understood to teach first and second pressure surfaces on opposite ends of the pin, as required by claim 11. The positioning of the pressure surfaces on opposite ends of the pin is inherent in a design having an hydraulic or pneumatic actuator, and thus does not represent new matter. With respect to Daniels, claim 11 requires that the pressure in the reservoir be independent of the pressurized fluid supply. This feature is inherent in a system with independently controlled actuators such as that disclosed by Applicant. Daniels teaches a design wherein the fluid reservoir and pressurized fluid supply are one and the same. Moreover, Daniels does not teach a design wherein adjustment of the fluid pressure at the first pressure surface, adjustment at the second pressure surface, or adjustment at both, is sufficient to reciprocate the pin. In contrast, in the Daniels design, adjustment of fluid pressure affects the pressure at both surfaces. Accordingly, the combination of references does not teach all the limitations of the present invention, and therefore cannot set forth a prima facie case of obviousness. The rejection is therefore overcome and withdrawal of the same is respectfully requested.

Applicant has also submitted new claim 15. Claim 15 depends from claim 7, and is directed to a design wherein the pin is magnetically biased toward a closed position. This limitation is discussed in Applicant's specification at page 3, lines 16 and 17.

WHEREFORE, all the claims of the instant application are believed to be in condition for allowance, which is respectfully solicited. If the Applicant may be of any further assistance in the prosecution of this application in any way, the Examiner is invited to contact the undersigned at (248) 364-2100.

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Respectfully submitted,

A handwritten signature in black ink, appearing to read "Robert A. Dunn", is written over the printed name.

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